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FACTORS RELATED WITH NURSE COMPLIANCE IN THE IMPLEMENTATION OF PATIENT SAFETY INDICATORS AT HOSPITAL

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Abstract

Patient safety is one of the five crucial hospital safety issues. This study aimed to determine factors related with nurses' compliance in the implementation of indicators of patient safety goals (IPSG 1, IPSG 2, IPSG 5, and IPSG 6). This study was a descriptive correlative with a cross-sectional approach. Samples were recruited using a purposive sampling technique (n = 102). Data were analyzed using chi-square and Mann–Whitney tests. The results of this study indicate that the leadership style of the head nurse, rewards, attitudes, and motivation had a significant relationship with the level of adherence in the implementation of IPSG 1 and IPSG 2. The level of nurses' compliance in the implementation of IPSG 5 was only influenced by the leadership style of the room head and the nurses' positive attitude. None of the factors had significant relationships with the level of nurses' compliance in the implementation of IPSG 6. The consultative leadership style of the room head can change the level of nurses' compliance in the implementation of IPSG 1 by 5.6 times, with 5.06 times toward IPSG 2 and 4.71 times toward IPSG 5. This research recommends the need for consultative leadership style from the room head to carry out the roles and functions as a supervisor to improve associate nurses' compliance in the implementation of IPSG 1, IPSG 2, IPSG 5, and IPSG 6.

Keywords: compliance, indicator of patient safety goals, nurse

Abstrak

Faktor-Faktor yang Berhubungan dengan Tingkat Kepatuhan Perawat dalam Implementasi Indikator Sasaran Keselamatan Pasien di Rumah Sakit*. Keselamatan pasien adalah salah satu dari lima isu penting keselamatan di rumah sakit. Penelitian ini bertujuan untuk menentukan faktor-faktor yang terkait dengan kepatuhan perawat dalam penerapan indikator sasaran keselamatan pasien (IPSG 1, IPSG 2, IPSG 5, dan IPSG 6). Desain penelitian menggunakan deskriptif korelatif dengan pendekatan cross-sectional. Sampel diambil dengan menggunakan teknik purposive sampling (n= 102). Data dianalisis dengan menggunakan uji Chi-square dan Mann-Whitney. Hasil penelitian menunjukkan bahwa gaya kepemimpinan kepala ruangan, penghargaan, sikap, dan motivasi memiliki hubungan yang signifikan dengan tingkat kepatuhan dalam penerapan IPSG 1 dan IPSG 2. Tingkat kepatuhan perawat dalam penerapan IPSG 5 hanya dipengaruhi oleh gaya kepemimpinan kepala ruangan dan sikap positif perawat. Tidak ada faktor yang memiliki hubungan signifikan dengan tingkat kepatuhan perawat dalam penerapan IPSG 6. Gaya kepemimpinan konsultatif kepala ruangan dapat mengubah tingkat kepatuhan perawat dalam penerapan IPSG 1 sebesar 5,6 kali, dengan 5,06 kali terhadap IPSG 2 dan 4,71 kali terhadap IPSG 5. Penelitian ini merekomendasikan perlunya gaya kepemimpinan konsultatif dari kepala ruangan untuk melaksanakan peran dan fungsi sebagai pengawas untuk meningkatkan kepatuhan perawat dalam penerapan IPSG 1, IPSG 2, IPSG 5, dan IPSG 6.*

Kata Kunci*: indikator sasaran keselamatan pasien, kepatuhan, perawat*

Introduction

Safety is a global as well as a hospital issue. Five important safety issues in the hospital are patient safety, health worker or officer safety, hospital building and equipment safety which may affect patient and officer safety, environmental safety (green productivity) which affects environmental pollution, and hospital business safety which is related with the hospital survi-

val. However, hospital activities can be performed only when there is patient, so patient safety is the main priority. Three of the 10 facts on patient safety released by the World Health Organization in 2018 are as follows: (1) adverse event (AE) is the 14th cause of global burden of disease or equal to diseases such as tuberculosis and malaria, (2) 1 of 10 patients experience AE while staying in the hospital, (3) 4 of 100 patients staying in hospital have nosocomial infection due to health treatment. Patient safety is a system in making patient healthcare services safer and preventing errors and side effects related with the administered healthcare service. The National Reporting and Learning System in the United Kingdom reported 307,975 patient safety incident cases from April 2016 to March 2017 with 1,500 AE cases and 194 cases that led to death. In Indonesia, the Ministry of Health through the Directorate of Health Effort Development online data per January 09, 2018 reported 836 no harm incidents, 790 near-miss incidents, and 1,056 AE and sentinel cases.

To enhance hospital safety, the Hospital Accreditation Commission (KARS) in 2018 released six Indicator of Patient Safety Goals (IPSG), i.e., identifying patient correctly; improving effective communication; improving security of high-alert medications; ensuring correct surgery location, procedure, and surgery on the patient; reducing risk of infection related with health services; and reducing risk of injury of patient due to fall. The actual implementation of patient safety in hospital is inseparable from health workers, especially with nurses, because nurses are the most dominant health workers, i.e., they account for 33.3% of the total health workers or 3,406,558 people (Ministry of Health of RI, 2018). Moreover, nurses have an important role in providing nursing care. This is related with the fact that nurses work 24 h to care for patients (Roussel & Swansburg, 2009). To implement patient safety program, nurse compliance is required.

Cilacap Regional General Hospital is a hospital owned by the local government of Cilacap Regency, Central Java, Indonesia, which is accredited by KARS in 2016. It is a type B nonteaching hospital with 299 beds. Its bed occupancy ratio in 2015 was 61.04% and in 2016 was 78.11% (Cilacap Regional General Hospital, 2016). Based on the report of Quality Improvement and Patient Safety committee of the General Hospital of Cilacap through the patient safety subcommittee, as regards IPSG in 2016, there were 26 harm incidents reports, 3 near-miss incidents reports, and 12 AE reports. Meanwhile, in 2017, the number of IPSG reports for harm incidents, near-miss incidents, AE, and sentinel were 4, 10, 8, and 1, respectively. Data related with patient safety indicators from the quality subcommittee of the Cilacap Regional General Hospital for IPSG 1, IPSG 2, IPSG 5, and IPSG 6 in the fourth quarter of 2017, i.e., October, November, and December, decreased by 3.14%, 8%, 0.3%, and 2%, respectively, compared with the data of the third quarter of 2017 which had not met the target of 100%. Meanwhile, IPSG 3 and IPSG 4 throughout 2017 did not decrease or matched the target of 100%.

The result of a preliminary study on the implementation of IPSG in Cilacap Regional General Hospital via interview on January 8–10, 2018, with the heads of some inpatient rooms showed that nurses in the inpatient room currently have decreased implementation of patient safety measures, especially for IPSG 1, IPSG 2, IPSG 5, and IPSG 6. The result of the observation of IPSG implementation for 3 days on 15 nurses shows that 60% of the nurses do not comply with rechecking patient's identification bracelet, reconfirming therapy or instruction given verbally or via telephone by colleague, washing hands before contact with patients, and reassessing fall risk of patient.

The scope of patient safety covers knowledge and health human resources. Nurse as a health human resources has an important role in patient safety and requires commitment to develop patient safety culture. Pujilestari, Maidin, and Anggraeni (2016) stated that 49.3% of nur-

ses have low patient safety culture. Mahdarsari, Handiyani, and Pujasari (2016) reported that 59% of nurse behaviors in maintaining personal safety is poor, while patient safety implementation in hospital according to the study by Purba (2017) shows that 43.9% of nurses have unsafe behaviors in implementing patient safety. In another study, Ernawati, Rachmi, and Wiyanto (2014) used a descriptive, observational through a fishbone approach based on man, machine, method, material, and alternative solutions using urgency seriousness growth and reported that the hand hygiene compliance of hospital inpatient nurses is still low (35%). High compliance is found after contact or after treatment, while very low and even 0% hand washing compliance is found before contact with a patient.

Nurses require compliance and self-awareness in implementing patient safety. Compliance means significant change in accordance with the set objective. Change in attitude and behavior starts from compliance, identification, and then internalization; thus, compliance is the first stage of change, so all factors supporting or affecting behavior will also affect compliance (Kelman, 2006). Nurse compliance in patient safety indicators implementation reflects the behavior of a professional nurse and may be affected by individual, organizational, and psychological factors (Tondo & Guirardello, 2017). This study aimed to determine factors related with nurses' compliance in the implementation of indicators of patient safety goals (IPSG 1, IPSG 2, IPSG 5, and IPSG 6).

Methods

This study used a cross-sectional approach. The research population was composed of all nurses working in the inpatient room of the X Hospital in Cilacap, Central Java, Indonesia. The sample was collected using convenience sampling technique with the following inclusion criteria: having worked ≥ 1 year and not on study duty or leave. The study sample was composed of 102 nurses, and to determine the number of nurses in each room, proportional random sampling technique was used.

This study used researcher-developed questionnaires. 1) In the attitude questionnaire, the materials or substances of nurse attitudes statements were adopted from Wawan and Dewi (2011), PMK R.I No. 11 of 2017 (Ministry of Health RI, 2017), and KARS (2018). 2) In the motivation questionnaire, nurse motivation statements were adopted from Sparks and Repede (2016), PMK R.I No. 11 of 2017 (Ministry of Health RI, 2017), and KARS (2018). 3) In the room head leadership style questionnaire, leadership style statements were adopted from Hersey, Blanchard, and Johnson (2013), PMK R.I No. 11 of 2017 (Ministry of Health RI, 2017), and KARS (2018). 4) In the work design questionnaire, work design statements were adopted from Taba (2018), PMK R.I No. 11 of 2017 (Ministry of Health RI, 2017), and KARS (2018). 5) In the reward questionnaire, reward statements were adopted from PMK RI No. 11 of 2017 (Ministry of Health RI, 2017), and KARS (2018). 6) In the compliance level observation sheet, statements were adopted from PMK R.I No. 11 of 2017 (Ministry of Health RI, 2017) and KARS (2018).

Validity test was performed through two stages, i.e., content validity and construct validity. The result of expert assessment for content validity (CVI and CVR) revealed that all questionnaires have CVI > 0.8 and CVR > 0, which mean that the contents of the questionnaires were relevant and essential or beneficial. The CVI value was not lower than 0.78 (Hendryadi, 2017). Construct validity and reliability tests of all model dimensions of the questionnaire show that the attitude model dimension has three invalid items, the motivation model dimension has four invalid items, the room head leadership style dimension has six invalid items, the work design model dimension has two invalid items, and the reward model dimension has five invalid items with scores < 0.44, (r count with N= 20 is 0.44), while the result of the reliability test is an alpha Cronbach value of 0.77–0.93. This study has passed the ethical review of the research ethics

commission of Universitas Padjajaran (number: 131/UN6.KEP/EC/2018 dated November 15, 2018).

Results

Tables 1a and 1b show that most nurses were female (59.8%), with average age and length of service of 32.64 years and 7.25 years, respectively. The most common education level of the nurses was associate degree (60.8%), while in the implementation of IPSG 1, IPSG 2, IPSG 5, and IPSG 6, most nurses had positive attitude and strong motivation (73.5% and 74.5%, respectively). The leadership style of the room heads according to the perceptions of the implementing nurses are predominantly consultative leadership style (74.5%), while the work design was 73.5% effective, with 74.5% of nurses claiming that the current reward was acceptable.

Table 2 shows that the highest nurse compliance level in the IPSG implementation was in the implementation of IPSG 2 and IPSG 5 (70.6%), while the lowest was in the implementation of IPSG 6 (14.7%).

Table 1a. Nurse Characteristics in the Implementation of IPSG 1, IPSG 2, IPSG 5, and IPSG 6 at the X Hospital (n= 102)

Variable	Category	n	%
Sex	Male	41	40.2
	Female	61	59.8
Education level	Diploma III	62	60.8
	Bachelor	40	39.2
Attitude	Positive	75	73.5
	Negative	27	26.5
Motivation	Strong	76	74.5
	Medium	26	25.5
Leadership style	Instructional	18	17.6
	Consultative	76	74.5
	Participative	4	3.9
	Delegation	4	3.9
Work design	Effective	75	73.5
	Ineffective	27	26.5
Reward	Suitable	76	74.5
	Unsuitable	26	25.5

Table 1b. Nurse Compliance in the Implementation of IPSG 1, IPSG 2, IPSG 5, and IPSG 6 at the X Hospital (n= 102)

Variable	Measurement	
Age	Mean	32.64
	Median	31.00
	SD	6.054
	Min–Max	23–48
	95% CI	31.45–33.83
Duration of work	Mean	7.25
	Median	6.00
	SD	5.959
	Min–Max	1–23
	95% CI	6.08–8.42

Table 2. Dependent Variable with Nurse Compliance in the Implementation of IPSG 1, IPSG 2, IPSG 5, and IPSG 6 at the X Hospital (n= 102)

Variable	Measurement	n	%
IPSG I	Compliance	69	67.6
	Noncompliance	33	32.4
IPSG 2	Compliance	72	70.6
	Noncompliance	30	29.4
IPSG 5	Compliance	72	70.6
	Noncompliance	30	29.4
IPSG 6	Compliance	15	14.7
	Noncompliance	87	85.3

Table 3. Correlation Between Independent Variable and Nurse Compliance in the Implementation of IPSG 1 at the X Hospital (n= 102)

Variable	Category		Compliance		n	p	OR
			Compliance	Noncompliance			
Sex	Male	f	28	13	41	1.000	-
		%	68.3%	31.7%	100.0%		
	Female	f	41	20	61		
		%	67.2%	32.8%	100.0%		
Education Level	Diploma III	f	39	23	62		-
		%	62.9%	37.1%	100.0%	0.290	
	Bachelor	f	30	10	40		
		%	75%	25%	100.0%		
Attitude	Positive	f	57	18	75	0.006*	3.958
		%	76%	24%	100.0%		
	Negative	f	12	15	27		
		%	44.4%	55.6%	100.0%		
Motivation	Strong	f	57	19	76	0.013*	3.500
		%	75%	25%	100.0%		
	Medium	f	12	14	26		
		%	46.2%	53.8%	100.0%		
Leadership Style	Instructional	f	6	12	18	0.005*	
		%	33.3%	66.7%	100.0%		
	Consultative	f	56	20	76		5.6
		%	73.7%	26.3%	100.0%		
	Participative	f	4	0	4		-
		%	100.0%	0.0%	100.0%		
	Delegation	f	3	1	4		1.5
		%	75%	25%	100.0%		
Work Design	Effective	f	52	23	75	0.714	-
		%	69.3%	30.7%	100.0%		
	Ineffective	f	17	10	27		
		%	63%	37%	100.0%		
Reward	Suitable	f	57	19	76	0.013*	3.500
		%	75%	25%	100.0%		
	Unsuitable	f	12	14	26		
		%	46.2%	53.8%	100.0%		

Table 4. Correlation Between Independent Variable and Nurse Compliance in the Implementation of IPSG 2 at the X Hospital (n= 102)

Variable	Category		Compliance		n	p	OR
			Compliance	Noncompliance			
Sex	Male	f	29	12	41	1.000	-
		%	70.7%	29.3%	100.0%		
	Female	f	43	18	61		
		%	70.5%	29.5%	100.0%		
Education Level	Diploma III	f	41	21	62	0.313	-
		%	66.1%	33.9%	100.0%		
	Bachelor	f	31	9	40		
		%	77.5%	22.5%	100.0%		
Attitude	Positive	f	59	16	75	0.006*	3.971
		%	78.7%	21.3%	100,0%		
	Negative	f	13	14	27		
		%	48.1%	51.9%	100.0%		
Motivation	Strong	f	59	17	76	0.016*	3.471
		%	77.6%	22.4%	100.0%		
	Medium	f	13	13	26		
		%	50.0%	50.0%	100.0%		
Leadership Style	Instructional	f	7	11	18	0.009*	-
		%	38.9%	61.1%	100.0%		
	Consultative	f	58	18	76		5.06
		%	76.3%	23.7%	100.0%		
	Participative	f	4	0	4		-
		%	100.0%	0.0%	1000%		
	Delegation	f	3	1	4		4.71
		%	75%	25%	100.0%		
Work Design	Effective	f	54	21	75	0.783	-
		%	72.0%	28.0%	100.0%		
	Ineffective	f	18	9	27		
		%	66.7%	33.3%	100.0%		
Reward	Suitable	f	59	17	76	0.016*	3.471
		%	77.6%	22.4%	100.0%		
	Unsuitable	f	13	13	26		
		%	50.0%	50.0%	100.0%		

Table 3 presents independent variables related with nurse compliance level in IPSG 1 implementation, i.e., attitude, motivation, reward, and leadership style of the room head ($p< 0.05$). The consultative leadership style of the room head had the highest odds ratio (OR, 5.6), which means that a consultative leadership style had 5.6 times chance to make implementing nurse more compliant in IPSG 1 implementation compared with attitude, motivation, and reward (OR 3.96 and 3.5).

Table 4 presents the independent variables related with nurse compliance level in IPSG 2 implementation, i.e., attitude, motivation, reward, and leadership style of the head of room ($p< 0.05$). The consultative leadership style had the highest OR (5.06), which reflects that the consultative leadership style had 5.06 times chance to make implementing nurse more compliant in IPSG 2 implementation compared with attitude, motivation, and reward (OR 3.97 and 3.47).

Table 5 lists the independent variables related with nurse compliance level in IPSG 5 implementation, i.e., attitude and leadership style of the head of room ($p< 0.05$). The consultative leadership style had the highest OR value (4.71), which indicates that a consultative leadership style had 4.71 times chance to make implementing nurses more compliant in IPSG 5 implementation compared with attitude (OR 3.17).

As shown in Table 6, no independent variable was related with nurse compliance level in implementing IPSG 6. The result of statistical test of nurse compliance in implementing IPSG 6 with independent variable shows no significant relation ($p > 0.05$).

Table 7 concludes that independent variables age and years of service have no significant relation with nurse compliance level in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6 in the X Hospital ($p> 0.05$).

Discussion

In this study, we found that nurses' compliance level in IPSG 6 implementation was only 14.7% and no factor had significant relation with the nurses' compliance level. Substantially, the incidents of patients falling in the hospital reflected the service quality. According to Dit. Bina Yanwat – KM (2014) one of the nursing service indicators is patient safety, which includes patient falls. Patient falls could cause AE which should be noted by everyone, including nurses. Nurses can prevent fall risk among patients by performing preliminary assessment of fall risk, reassessment of fall risk if there is a change in the condition or medication of the patients, and giving special sign for patient with fall risk (KARS, 2018).

Based on the result of the questionnaire analysis, five indicators were used by the researchers to assess nurses' compliance level in IPSG 6 implementation: (1) 70.6% of nurses performed fall risk assessment to all new patients undergoing inpatient treatment, (2) 41.2% of nurses performed moderate to high fall risk reassessment to patient, (3) 27.5% of nurses wrote result of reassessment of moderate to high fall risk on the integrated patient development record sheet, (4) 20.6% of nurses observe every 2 h patients with moderate to high fall risk, and (5) 86.3% of nurses put on yellow identification bracelet on patient with moderate to high fall risk.

The age of nurses working in the X Hospital did not show any significant relation with their compliance level. This proved that older age of nurse did not guarantee compliance in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6. According to the researchers' analysis, age was not always followed by maturity. Age also determined work behavior and ability, including how individuals respond to stimulus, with varying age presenting different responses to the implementation of IPSG 1, IPSG 2, IPSG 5, and IPSG 6. The research result was in line with the finding of Sumaningrum (2015) that no significant relation exists between age and nurse compliance in hand rub hand washing in hospital X of East Java province. Similarly, Natasia, Loekqijana, and Kurniawati (2014) reported no significant relation with performing nursing care for standard operating procedure (SOP) in the intensive care unit-intensive coronary care unit (ICU-ICCU) of Gambiran Hospital in Kediri, Indonesia.

The gender of nurses working in the X Hospital did not show any significant relation with their compliance level. It proved that gender difference did not determine nurse compliance in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6 in the X Hospital. Researchers thought that male and female nurses in the X Hospital worked similarly and did not show any significant difference in providing services to patients, because they worked consistent with the existing SOP. The results of the study agreed with those by Ulfa and Sarzuli (2016) who revealed no significant relation or effect between internal factor (gender) and nurse compliance in performing standard catheter installation in

Unit II of PKU Muhammadiyah Yogyakarta Hospital. Similarly, Meliana, Anggraeni, and Alimin (2013) found no significant relation between gender and nurse compliance in implementing patient safety guideline in Stella Maris Makassar Hospital.

The education of nurses working in the X Hospital did not show any significant relation with their compliance level. This finding confirmed that education level did not determine nurse compliance in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6 in the X Hospital. The researchers proposed that nurses with higher education level would have better performance because they had more extensive knowledge and insight than nurses with low education level, but they provided the same service standard to the patients; thus, the education level of service provider did not show significant difference.

Table 5. Correlation Between Independent Variable and Nurse Compliance in the Implementation of IPSG 5 at the X Hospital (n= 102)

Variable	Category		Compliance		n	p	OR
			Compliance	Noncompliance			
Sex	Male	f	30	11	41	0.804	-
		%	73.2%	26.8%	100.0%		
	Female	f	42	19	61		
		%	68.9%	31.1%	100.0%		
Education Level	Diploma III	f	41	21	62	0.313	-
		%	66.1%	33.9%	100.0%		
	Bachelor	f	31	9	40		
		%	77.5%	22.5%	100.0%		
Attitude	Positive	f	58	17	75	0.025*	3.168
		%	77.3%	22.7%	100.0%		
	Negative	f	14	13	27		
		%	51,9%	48.1%	100,0%		
Motivation	Strong	f	58	18	76	0.055	-
		%	76,3%	23.7%	100.0%		
	Medium	f	14	12	26		
		%	53,8%	46.2%	100.0%		
Leadership Style	Instructional	f	7	11	18	0.005*	-
		%	38,9%	61.1%	100,0%		
	Consultative	f	57	19	76		4.71
		%	75,0%	25.0%	100.0%		
	Participative	f	4	0	4		-
		%	100.0%	0.0%	100.0%		
	Delegation	f	4	0	4		-
		%	100.0%	0%	100.0%		
Work Design	Effective	f	54	21	75	0.783	-
		%	72.0%	28.0%	100.0%		
	Ineffective	f	18	9	27		
		%	66.7%	33.3%	100.0%		
Reward	Suitable	f	58	18	76	0.055	-
		%	76.3%	23.7%	100.0%		
	Unsuitable	f	14	12	26		
		%	53.8%	46.2%	100.0%		

Table 6. Correlation Between Independent Variable and Nurse Compliance in the Implementation of IPSG 6 at the X Hospital (n= 102)

Variable	Category		Compliance		n	p
			Compliance	Noncompliance		
Sex	Male	f	5	36	41	0.763
		%	12.2%	87.8%	100.0%	
	Female	F	10	51	61	
		%	16.4%	83.6%	100.0%	
Education Level	Diploma III	F	6	56	62	0.134
		%	9.7%	90.3%	100.0%	
	Bachelor	f	9	31	40	
		%	22.5%	77.5%	100.0%	
Attitude	Positive	f	12	63	75	0.754
		%	16.0%	84.0%	100.0%	
	Negative	f	3	24	27	
		%	11.1%	88.9%	100.0%	
Motivation	Strong	f	12	64	76	0.755
		%	15.8%	84.2%	100.0%	
	Medium	f	3	23	26	
		%	11.5%	88.5%	100.0%	
Leadership Style	Instructional	f	2	16	18	0.183
		%	11.1%	88.9%	100.0%	
	Consultative	f	11	65	76	
		%	14.5%	85.5%	100.0%	
	Participative	f	0	4	4	
		%	0%	100.0%	100.0%	
	Delegation	f	2	2	4	
		%	50.0%	50.0%	100.0%	
Work Design	Effective	f	13	62	75	0.343
		%	17.3%	82.7%	100.0%	
	Ineffective	f	2	25	27	
		%	7.4%	92.6%	100.0%	
Reward	Suitable	f	12	64	76	0.755
		%	15.8%	84.2%	100.0%	
	Unsuitable	f	3	23	26	
		%	11.5%	88.5%	100.0%	

Table 7. Correlation Between Age and Duration of Work with Nurse Compliance in the Implementation of IPSG 1, IPSG 2, IPSG 5, and IPSG 6 at the X Hospital (n= 102)

Variable	Mean Median	SD	Min–Max	p			
				IPSG 1	IPSG 2	IPSG 5	IPSG 6
Age	32.64 31.00	6.054	23–48	0.649	0.808	0.805	0.440
Duration of Work	7.25 6.00	5.959	1–23	0.608	0.338	0.472	0.148

The results of the present study were consistent with that of Natasia et al. (2014), i.e., education does not have significant relation with nurse compliance in performing standard nursing care in the ICU-ICCU of Gambiran Hospital in Kediri.

The number of service years of nurses working in the X Hospital did not show any significant relation with their compliance level. This proved that the length of service of a nurse did not guarantee compliance in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6. Similar research result is found by Ulfa and Sarzuli (2016) who stated no significant relation between internal factor (length of service) and nurse compliance in performing standard catheter installation in Unit II of PKU Muhammadiyah Yogyakarta Hospital. In line with the study above, Sumaningrum (2015) also reported no significant relation between length of service and nurse compliance in *handrub* hand washing in hospital X of East Java province. According to the researchers' analysis, the length of nursing service in the X Hospital did not have significant relation with compliance level in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6, which might be due to different adaptation processes and experience of each nurse, thus causing issue in the work environment.

The leadership style of the room head had significant relation with nurse compliance in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6 6 in the X Hospital. The finding of this study was in line with those of Meliana et al. (2013) and Anugrahini et al., (2010), i.e., a relation was found between the leadership style of the room head and nurse compliance in implementing patient safety guideline. In this case, if a leader can provide direction, supervision, and coordination to nurses well, it will create conducive work condition, so that nurses will comply to working in accordance with the existing SOP to provide services to patients. The effect of situational leadership style of the room head on nurse compliance in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6 could be seen based on the interrelation between direction and support given by the room head to the nurse (Hersey et al., 2013). In the present study, in terms of direction and support by the room head, most implementing nurses preferred the consultative leadership style compared with other leadership styles. A consultative leadership style is a type of situational leadership style. A leader tries to implement the most effective leadership style by adjusting with the current situation (Martin, 2009). This finding is in line with that by Cunningham and Cordeiro (2003) who stated that leadership style affects the behavior of the subordinate who support the usage of the preferred style. Leadership style is an approach shown by a leader through explicit and implicit actions, which can be seen by others, to integrate organizational goals and individual goals to achieve a common objective (Campling, et al, 2006; Newstrom & Davis, 2002). Hersey et al. (2013) presented four situational leadership styles based on supportive and directive behaviors of a leader: in an instructional leadership style, the leader gives a lot of directions but little support to the staff. In the consultative type, the leader provides a lot of directions and support to the staff. In the participatory type, the leader gives a lot of support but little direction to the staff, and in the delegation type, the leader gives little direction and support to the staff. The researchers argue that most nurses in the X Hospital preferred consultative leadership style in which a leader shows a lot of directions and support. The nurses perceived leader with this style to be able and willing to explain their decisions and policies, as well as willing to accept employees' opinions. The consultative leadership style of the room head in the X Hospital had very important role on nurses' compliance in implementing IPSG 1, IPSG 2, and IPSG 5.

The current work design did not have any significant relation with nurses' compliance level. This proved that an effective work design did not necessarily affect nurse compliance in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6 in the X Hospital. According to the researchers'

assumption, generally, a manager regulates the duties and responsibilities of each individual. Good work design encouraged individual to be more productive to reach organizational goal. The current work design in the X Hospital according to most nurses was effective, but it did not have any significant relation with the level of nurse compliance. It might be because the work design was not fully applied well by the nurses, thus affecting the level of nurse compliance in implementing IPSG. The research result was different from that of Wakefield (2008), Gelinas and Loh (2004), and Anugrahini et al., (2010), who state that if a nurse has good perception on work design, the nurse will comply in implementing patient safety guideline, because work design covers the depth and objective of each work which differentiate works from each other.

Reward had significant relation with nurse compliance in implementing IPSG 1 and IPSG 2, except for IPSG 5 and IPSG 6 in the X Hospital. Reward is an employee's right of performing work. Suitable reward encouraged nurses to work productively by increasing compliance to the implementation of IPSG 1 and IPSG 2. In the present study, rewards were both financial and non-financial. The research result supported the theories of Taba (2018) that reward will increase one's performance, but work motivation will be lowered if employee relation is not appreciated with equal reward. The result of the present study was also in line with that of Plots and Nelson (2007) who stated that nurses who received reward will be more compliant when working in the ICU (90%). In the present study, the rese-archers found that 74.5% (n= 76) of the nurses perceived the reward as suitable and was able to contribute to their compliance in implementing IPSG 1 and IPSG 2 (75% or 57 nurses and 77.6% or 59 nurses, respectively). Moreover, nurses working in the X Hospital had received suitable reward consistent with the jointly agreed internal regulations of the X Hospital, but there was perception that the reward was not fair because it was not consistent with the performance of each nurse. Financially, this was because people are never satisfied with what they got. Non-financially, recognition of achievement, promotion, career development, education, and training opportunity and compliment from nursing manager and hospital were expected to improve nurse compliance in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6.

Attitude had significant relation with the level of nurse compliance in implementing IPSG 1, IPSG 2, and IPSG 5, except for IPSG 6 in the X Hospital. Most nurses with negative attitude did not comply with the implementation of IPSG 1, IPSG 2, IPSG 5, and IPSG 6. This was in line with the result of Setiyawati and Supratman (2008) that a significant relation was found between attitude and nurse compliance in preventing surgery wound infection. In this case, nurses with positive attitude will be more compliant in implementing measures to prevent surgery wound infection. In addition, Permana and Hidayah (2017) reported a relation between attitude and health worker compliance in implementing precaution standards for infection prevention. In this case, a health worker with negative attitude has lower chance of complying in implementing the precaution standards for infection prevention compared with a health worker with positive attitude. The effect of attitude on compliance in the implementation of IPSG 1, IPSG 2, IPSG 5, and IPSG 6 could be seen in nurse's view through four attitude dimensions, i.e., acceptance, response, appreciation, and responsibility (Wawan & Dewi, 2011). The analysis of the relation between nurses' view in four attitude dimensions and level of nurse compliance in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6, showed that most nurses had positive attitude, i.e., nurses in the X Hospital tended to act or like certain objects such as compliance in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6. The researchers assumed that the attitude of nurses in the X Hospital was affected by the leadership style of the room head because their position was considered important, suitable reward, and internal motivation. In the present study, researchers found that a positive nurse attitude did not have any re-

lation with nurse compliance in implementing IPSG 6. Moreover, the analysis showed that attitude could change on certain condition and terms. Moreover, attitude was not independent but was always related with a certain object. The object of attitude in the present study was the implementation of IPSG 6, in which nurses were required to comply with its implementation to prevent AE, i.e., risk of patient injury due to falls and other causes such as personal experience, culture, and emotion. Moreover, nurses' positive attitude did not have significant relation with nurse compliance in the implementation of IPSG 6.

Motivation had significant relation with the level of nurse compliance in implementing IPSG 1 and IPSG 2, except for IPSG 5 and IPSG 6 in the X Hospital. Meanwhile, most nurses with moderate motivation tended to be less compliant in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6. This was in line with the result of Natasia et al. (2014), who stated that motivation has significant relation or effect on nurse compliance in performing standard nursing care in the ICU-ICCU of Gambiran Hospital in Kediri. In this case, nurses with high motivation are more compliant in performing SOP. High nurse motivation in Gambiran Hospital is affected by the reward. The effect of nurse motivation on compliance in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6 could be seen from nurses' view through three motivation dimensions, i.e., need for achievement, power or self-actualization, and affiliation (Sparks & Repede, 2016).

In the present study, the effect of nurses' view in the three motivation dimensions on the level of nurse compliance in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6 showed that most had strong motivation, which means that nurses in the X Hospital were driven to act or respond to certain needs, e.g., need to comply in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6. Motivation is one of the ways to meet one's needs. If one has met certain needs, they will meet other higher needs. Noltemeyer et al. (2020) states that, in accordance with Maslow, if a need has been met by an individual, high-level needs will be the new needs to be met. In the present study, the motivation of X Hospital the was the drive to act based on the needs to implement IPSG 1, IPSG 2, IPSG 5, and IPSG 6, and this was a strong motivation. Strong motivation among X Hospital nurses could be seen from the data analysis based on the responses of the questionnaires. Of the three motivation dimensions, most nurses agreed with the statement items. According to the researchers' analysis, nurse motivation in the X Hospital was affected by the reward from hospital management because most nurses claimed that the current reward given by the hospital management was suitable for them. In the present study, the researchers found that nurse motivation did not have any relation with the level of nurse compliance in implementing IPSG 5 and IPSG 6, but based on data analysis, more than 50% of nurses with strong and moderate motivation comply with the implementation of IPSG 5, while most nurses did not comply with the implementation of IPSG 6, regardless of having a strong or moderate motivation. The researchers' analysis showed that if motivation was affected by certain needs, the nurse considered washing hands to prevent infection and reducing injury due to fall was not a priority.

There are several limitations in this study, namely: first is when make observations of data collection, if observations are made in the treatment room class 2 and class 3, observers can participate directly, so that data obtained quite valid, while for observation in the main class and VIP ward observer has difficulty taking data, because they are not directly involved, the observer only observes from a distance or the observer cooperates with the head of his room. Second, in this study there are several factors relates to the level of compliance in the implementation of IPSG that is not included in the research are marital status, resources, and perception. These three factors according to researchers can affect the results of this study, so the next researcher so that all three factors can be included in his research.

Conclusion

Age, gender, education, length of service, and work design do not have significant relation with the level of nurse compliance in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6. Nursing service quality in the context of patient safety in the X Hospital is not affected by age, gender, education, length of service, and work design; thus, potential improvement can be done by improving the function and service supervision, in this case starting from room head. The leadership style of the room head, reward, motivation, and attitude have significant relations with the level of nurse compliance in implementing IPSG 1, IPSG 2, IPSG 5, and IPSG 6. Nursing service quality in the context of patient safety in the X Hospital is affected by the leadership style of the room head, reward, motivation, and attitude; thus, potential improvements include implementing consultative leadership style by room head considering the maturity level of the members and maintaining or even improving the current reward system because rewards influence one's performance and motivation.

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